p. 525 #14

$\hat{p}_1 = \frac{191}{209} = 0.9139$ $\hat{p}_2 = \frac{188}{208} = 0.9039$

Conditions:

1) 2 independent SRS
2) $n\hat{p}_1$
   $n\hat{q}_1$
   $n\hat{p}_2 \geq 10$
   $n\hat{q}_2$
3) $pop_1 \geq 10n_1$
   $pop_2 \geq 10n_2$

1) assumed random and indep
2) 191
   18
   188 $\geq 10$
   20
3) There are more than 2090 2080 free throws taken by each player.

Conditions met => Normal model => 2 prop Z interval

$$(\hat{p}_1 - \hat{p}_2) \pm z^* \sqrt{\frac{\hat{p}_1\hat{q}_1}{n_1} + \frac{\hat{p}_2\hat{q}_2}{n_2}} = (-0.0452, 0.06527)$$

We are 95% confident that the difference between the % of free throws made for Korver and Carroll is between -4.52% and 6.527%

(b) No, not certain. Since 0 is in the interval, we believe that there is no difference between the two players.

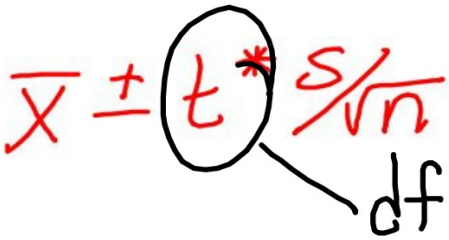
**#3 in notes:**

n = 36 $\bar{x}$ = 16.1 s = 0.11 df = 35 90% conf.

Conditions:

| | |
|---|---|
| 1) SRS | 1) assumed random |
| 2) pop ≥ 10n | 2) there are more than 360 bottles of soda |
| 3) normal pop or n ≥ 30 | 3) n = 36 ≱ 30 |

Conditions met => use Student's t-distribution => 1-sample t-Interval




= (16.069, 16.131)

We are 90% confident that the true average amount of cola in a bottle is between 16.069 and 16.131 ounces.

**#4 in notes:**

n= 50 $\bar{x}$= 5.9 s= 2.859 df= 49 $\alpha$ = 0.01

Conditions:

| | |
|---|---|
| 1) SRS | 1) assumed random |
| 2) pop ≥ 10n | 2) there are more than 500 hospital stays |
| 3) normal pop or n ≥ 30 | 3) n = 50 ≥ 30 ✓ |

Conditions met => use Student's t-distribution => 1-sample t-Test

$t = \frac{\bar{x} - \mu}{s/\sqrt{n}} = -3.215$

-1

$2*P(t \leq -3.215 \mid df = 49) = 0.0023$

- We reject Ho b/c p-value of 0.0023 < alpha = 0.01.

- We have sufficient evidence that the true average length of a hospital stay is not 7.2 days.

$H_0: \mu = 7.2$

$H_a: \mu \neq 7.2$

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